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Attn:Request for Certification of Patent Correction
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Re: Patent No. 6,864,978
Atty. Docket No. IMET0040
TOTAL PAGES (Incl. cover sheet) - 8
The following documents are enclosed:

- Certificate of Facsimile Transmission (1 page);
- Request for Certificate of Correction in Patent (2 pages, in duplicate);
- Page 11 of Patent showing requested corrections (1 page); and
- Certificate of Correction (1 page, in duplicate).

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Hazen, *et al.*

Docket No.: IMET0040

Serial No: 09/664,973

Filed: September 18, 2000

U.S. Patent Number: 6,864,978

Date Issued: March 8, 2005

Examiner: D. McCrosky

Art Unit: 2877

Title: METHOD AND CHARACTERIZING SPECTROMETER INSTRUMENTS AND PROVIDING CALIBRATION MODELS TO COMPENSATE FOR INSTRUMENT VARIATION

August 16, 2005

Assistant Commissioner for Patents
Mail Stop Certificate of Corrections
P.O. Box 1450
Alexandria, VA 22313-1450

Request for Certificate of Correction in Patent under 35 USC §254

The enclosed Certificate of Correction (PTO Form 1050) for the above-identified patent is submitted under Rule 322.

The correction requested involves mistakes made by the Patent Office. The Office has misspelled under Claim 27, column 11, line 56 the word "clusters" as "dusters". Also under Claim 27, column 11, line 59 the word "clusters" should have a comma after it.

Please correct Claim 27 to read as follows:

27. A method of characterizing spectrometer instruments according to instrument variation, comprising the steps of:

collecting spectra using at least one optical spectrometer instrument; and

classifying said spectra into predefined clusters on the basis of extracted spectral features; and

providing calibration models for each of said predefined clusters, wherein said calibration models model instrumental variation.

The patentee is entitled to correction of good-faith transcription of a clerical error where "the correction does not involve such changes in the patent as would constitute new matter or would require reexamination." 35 U.S.C. § 255. Therefore, no new matter is provided with this Certificate of Correction.

AUG 22 2005

The enclosed Certificate of Correction (PTO Form 1050) for the above-identified patent is submitted under Rule 323, in duplicate, with at least one copy being suitable for printing.

Please send the Certificate to the undersigned at the address shown below.

The Commissioner is hereby authorized to charge the fee of $100.00 to Deposit Account 07-1445 (Order No. IMET0040). This paper is provided in duplicate.

Respectfully Submitted,

Michael A. Glenn
Reg. No. 30,176

Customer No. 22862

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PTO/SB/ 44 (10-96)
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Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO : 6,864,978
DATED : March 8, 2005
INVENTOR(S) : Hazen, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 11, Claim 27 : replace " dusters on the basis of extracted spectral features; and providing calibration models for each of said predefined clusters wherein said calibration models model instrumental variation.

with - - - " clusters on the basis of extracted spectral features; and providing calibration models for each of said predefined clusters, wherein said calibration models model instrumental variation."

MAILING ADDRESS OF SENDER:
Glenn Patent Group
3475 Edison Way, Suite L
Menlo Park, CA 94025

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UNITED STATES PATENT AND TRADEMARK OFFICE
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DATED : March 8, 2005
INVENTOR(S) : Hazen, et al.

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Page 11, Claim 27: replace "A method of characterizing spectrometer instruments according to instrument variation, comprising the steps of:

collecting spectra using at least one optical spectrometer instrument; and

classifying said spectra into predefined clusters on the basis of extracted spectral features; and

providing calibration models for each of said predefined clusters wherein said calibration models model instrumental variation,

with - - - "A method of characterizing spectrometer instruments according to instrument variation, comprising the steps of:

collecting spectra using at least one optical spectrometer instrument; and

classifying said spectra into predefined clusters on the basis of extracted spectral features; and

providing calibration models for each of said predefined clusters, wherein said calibration models model instrumental variation."

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is calculated for each remaining cluster, and wherein a transform modifies said slave calibration model to said master calibration model in accordance with principal features defining each of said classes.

22. The method of claim 21, wherein said transferring step comprises the steps of:

transferring said master calibration model to a first slave calibration model;

transferring said first slave calibration model to a second slave calibration model;

and repeating said transfer from one slave calibration model to another slave calibration model, until a calibration has been provided for each of said predefined clusters;

wherein a transform modifies said transferred calibration models in accordance with principal features defining each of said clusters.

23. The method of claim 18, wherein a different calibration model is developed for each cluster, and wherein said calibration models are developed from a set of exemplar spectra, with reference values and pre-assigned cluster definitions.

24. The method of claim 23, wherein a spectrum is assigned to one of many of said predefined clusters for which a calibration model has been developed.

25. The method of claim 1, further comprising the steps of:

providing new spectral measurements;

comparing said new spectral measurements to each of said pre-defined clusters according to extracted spectral features;

reporting those measurements as outliers for which a matching cluster is not found.

26. A method of developing calibration models for spectral analysis comprising the steps of:

defining clusters from an exemplar data set of spectral measurements, wherein said clusters exhibit a high degree of internal similarity;

mapping said clusters to one another, wherein principal features distinguishing clusters from one another are determined;

calculating a calibration model for a first of said clusters, said calibration model comprising a master calibration;

transferring said master calibration to at least one slave calibration, wherein a slave calibration comprises a calibration derived by applying a transform to slave spectra such that the master calibration now models the difference between the master cluster and another cluster corresponding to said slave spectra.

27. A method of characterizing spectrometer Instruments according to instrument variation, comprising the steps of:

collecting spectra using at least one optical spectrometer instrument; and

clusters → classifying said spectra into predefined clusters on the basis of extracted spectral features; and

clusters, → providing calibration models for each of said predefined clusters, wherein said calibration models model instrumental variation.

28. A method of characterizing spectrometer Instruments according to instrument variation, comprising the steps of:

collecting spectra using at least one spectrometer instrument; and

classifying said spectra into predefined clusters on the basis of extracted spectral features; and

providing calibration models for each of said predefined clusters, wherein said calibration model is applied to a new spectral measurement.

29. A method of characterizing spectrometer instruments according to instrument variation, comprising the steps of:

collecting spectra using at least one spectrometer instrument; and

classifying said spectra into predefined clusters on the basis of extracted spectral features; and

providing calibration models for each of said predefined clusters, wherein said calibration models model said instrument variation; and

wherein said at least one spectrometer instrument is not a mass spectrometer.

30. A method of characterizing spectrometer instruments according to instrument variation, comprising the steps of:

collecting at least one spectrum using at least one spectrometer instrument; and

classifying said spectrometer Instrument into predefined clusters on the basis of extracted spectral features; and

providing calibration models for each of said predefined clusters.

31. The method of claim 30, wherein said calibration models model instrument variation.

32. The method of claim 3, wherein said instrument variation comprises any of:

wavelength shifts;

nonlinear wavelength shifts;

wavelength expansions;

wavelength contractions;

nonlinear wavelength expansions;

source intensity drifts;

blackbody profile changes;

bandwidth changes;

resolution changes;

baseline deviations;

changes over time;

temperature effects;

detector response;

differences in optical components;

variation related to mounting of references;

differences in the optical interface to the sample;

linearity; and

detector cut-off.

33. The method of claim 30, wherein said standard spectra are measured on a plurality of spectrometer instruments.

34. The method of claim 30, wherein said standard spectra are measured on a single spectrometer instrument at successive time intervals.

35. The method of claim 30, wherein said classifying step comprises the steps of: extracting features; and

classifying said features according to a classification model and decision rule.

36. The method of claim 35, wherein said feature extraction step comprises any mathematical transformation that enhances a particular aspect or quality of data that is useful for interpretation.

37. The method of claim 35, wherein said classification model comprises means for determining a set of similarity measures with predefined classes.

38. The method of claim 35, wherein said decision rule comprises means for assigning class membership on the basis of a set of measures calculated by a decision engine.

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